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FAUNISTIC NOTE

Acrotylus insubricus (Orthoptera, Acrididae) rediscovered at the northern edge of its range after 60 years

Miloš Balla[1], Anton Krištín[2]

1 *Správa CHKO Latorica, J. Záborského 1760/1, 07501Trebišov, Slovakia*
2 *Institute of Forest Ecology SAS, L. Štúra 2, 96053 Zvolen, Slovakia*

Corresponding author: *Anton Krištín* (kristin@ife.sk)

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Abstract

The xerothermophilous grasshopper *Acrotylus insubricus* was found at a new, isolated site in Eastern Slovakia, at the northern boundary of its range. This is the first record in Slovakia after 60 years. In this paper this record is presented, with information on the habitat and accompanying species.

Keywords

Zoogeography, Orthoptera, sandy habitats, Slovakia

The Common Digging Grasshopper *Acrotylus insubricus* (Scopoli, 1786) is xerothermophilous species and the Afro-eremial faunal element (Rácz 1998). It is widely distributed in Africa and Eurasia, but in Europe it is found only in the southern part. The northern border of the range lies in Hungary (Nagy 2005), with some isolated sites in southern Slovakia (Čejchan 1961, Hochkirch et al. 2016, Fig. 1). It inhabits a variety of habitats, characterised by a fair amount of bare ground (Massa *et al.* 2012), e.g. mediterranean shrubland, grassland, dunes, but also a variety of anthropogenic habitats, such as gardens, pasture lands or urban areas. It prefers habitats with a fine soil, which enables it to dig into the ground, where it overwinters (Nagy 1958, Hochkirch 1998). In Slovakia, it is an endangered pseudopsammophilous species, which can be found together with other pseudopsammophilous species,

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Figure 1. New site of *Acrotylus insubricus* in Slovakia (red dot) within its Europaean range (ex Hochkirch et al. 2016).

as *Acrida ungarica*, *Myrmeleotettix antennatus, Acrotylus longipes* and *Oedaleus decorus* (Mařan 1954, 1958, Gulička 1992, Krištín 2001). It was recorded from the Slovak area in the 19th century in Eastern Slovakia, near Somotor village (Chyzer 1897, Pungur 1900). It was documented as the northernmost site within its range. Additional findings include the same sandy site in E Slovakia (September 1951, one female, Mařan 1958), and three new sites in SW Slovakia: 1) Kováčovské kopce Mts near Štúrovo; April 1952, one female and August 24, 1955, several specimens (Mařan 1958), 2) sandy habitats in Chotín; August 25, 1960, 8♂ and 7♀ (Čejchan 1961) and 3) sandy steppic grasslands near Čenkov; August 26, 1960, 6♂ and 7♀ (Čejchan 1961). The nearest documented occurrence to Slovakia were sporadic records in Hungary (Nagy 2005). Recently we discovered a population (22♀, 6♂ and 6 nymphs/1000 m^2) in a sandy habitat site in N Hungary, near Szödliget village in August 28, 2019, about 23 km SE of Slovak border (47.718N, 19.158E, 109 m a.s.l.).

In spite of the increased sampling effort in all the known and similar sites with sandy habitats of Slovakia in the last 25 years (~1900 localities in 1994–2019, www.orthoptera.sk; Krištín et al. 2004a, 2004b, 2011), we were unable to confirm the presence of *A. insubricus* until 2019. In 2019, we found a small isolated population in northern part of Pannonian area of Eastern Slovakia, in a sandy site near Svätuše village (old name Plešany, GPS: 48.4197N, 21.9386E). We could establish a population of approximately 30–35 individuals (2/3 females, Fig. 2), during five visits (25.

October – 20.November 2019). The autumn was relatively warm, with only three nights with ground frosts (daily t_{max} = 13–19 °C). We expected to find *A. insubricus* also in two similar sites (Horeš and Strážne) with similar habitats, but no individuals were found there.

The population at Svätuše is distributed over approximately 1 ha (120 × 80 m, 118 m a.s.l., Fig. 3). The site is characterized by bare sandy soils with scarce grassy and herbal vegetation of *Festuca* spp., *Artemisia campestris* (80%), *Polygonum aviculare, Eryngium campestre* and other plants (20%), in *Festucion vaginatae* association group. The habitat is similar to the one described in other regions (Nagy 1958, Hochkirch 1998, Rácz 1998). During the species mapping in the autumn, also other grasshopper species occurred there (*Calliptamus italicus, Oedipoda caerulescens, Chorthippus mollis* and *Myrmeleotettix maculatus*). Between 1997–2019, 43 Orthoptera species (18 Ensifera, 25 Caelifera) have been recorded from this area (1 km^2), including other pseudopsammophilous and xerothermophilous species, e.g. *Oedaleus decorus, Dociostaurus brevicollis, Myrmeleotettix antennatus, Euchorthippus pulvinatus*, *E. declivus*, *Gampsocleis glabra, Montana montana, Platycleis affinis* and *Tettigonia caudata.* Despite of the intensive sampling efforts, the occurrence of congeneric species *Acrotylus longipes* could not be confirmed there. This species was found in the study area in 1960s by Gulička (1992), having a stable population approximately 110 km south from Slovak border in sandy habitats near Kecskemét (Nagy 1958).

The new site of *A. insubricus* is situated only 9 km east of the first described site in Slovakia (Somotor) around 1900 (Chyzer 1897, Pungur 1900). Therefore, we do not think that it is a recent spread of the species, but probably a long overlooked population.

Figure 2. *Acrotylus insubricus* male and female (Svätuše, 14.11.2019, photo by M. Balla).

Figure 3. Sandy habitat of *A. insubricus* with ruderal vegetation in Eastern Slovakia (autumnal aspect, 20.11.2019, photo by M. Balla).

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